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ABSTRACT

The self-serving effect (SSE), often depicted as a bias, is the tendency to accept responsibility for one's own successes but not one's own failures. Two studies of Australian fifth graders (n=226, n=559) were further analyzed to investigate individual differences in SSE. The Sydney Attribution Scale measured students' perceptions of the causes of their academic successes and failures. The Self Description Questionnaire measured four nonacademic and three academic self-concepts. Mathematics and reading achievement data came from standardized tests and teacher ratings. Results from these studies demonstrate that the size of the SSE for academic attributions varies with the cause being judged, the respondent's achievement level, and the respondent's self-concept. The SSE is larger for attributions to ability and effort attributions than to external causes, it is larger for more able students, and it is larger for students with higher self-concept. Furthermore, SSEs for outcomes in mathematics and reading, particularly for attributions of ability, are content specific. The logical pattern of relations among the SSEs, academic self-concept and achievement, and the content specificity of the SSE, argue that academic achievement and self-concept are nonmotivational influences on the SSE. (Author/BS)

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The Self-Serving Effect (Bias?) in Academic Attributions: Its Relation to Academic Achievement and Self-concept

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The Self-Serving Effect (Bias?) in Academic Attributions:
Its Relation to Academic Achievement and Self-concept

ABSTRACT

The self-serving effect (SSE), often depicted as a bias, is the tendency to accept responsibility for one's own successes but not ones' own failures. Results from two different studies demonstrate that the size of the SSE for academic attributions varies with the cause being judged, the respondent's achievement level, and the respondent's self-concept. The SSE is larger for attributions to ability and effort attributions than to external causes, it is larger for more able students, and it is larger for students with higher self-concept. Furthermore, SSEs for outcomes in mathematics and reading, particularly for attributions of ability, are content specific. The logical pattern of relations among the SSEs, academic self-concept and achievement, and the content specificity of the SSE, argue that academic achievement and self-concept are nonmotivational influences on the SSE.

The Self-Serving Effect (Bias?) in Academic Attributions:
Its Relation to Academic Achievement and Self-concept

The Self-Serving Effect (SSE).

Heider (1958) proposed that attributions of causality are influenced by subjective needs as well as by objective information. Attribution researchers ask subjects for their perceptions of the cause of an actual or hypothetical outcome, and then examine individual differences in the way subjects explain their own behavior and/or how situational manipulations of the attributional context alter their responses. Subjects are typically presented with stimuli depicting success and failure, and asked to judge the likelihood of perceived causes of the outcome (e.g., ability, effort, luck, task difficulty). A substantial body of literature has demonstrated that subjects are more likely to attribute their own success to internal causes such as ability and effort, while attributing their failure to external causes. In a review of this research, Zuckerman (1979) reported "that of a total of 38 studies, 27 (71.0%) found subjects taking more responsibility for success than for failure, while two (5.3%) found subjects accepting more responsibility for failure than for success" (p. 254-255). This finding, sometimes called self-serving bias or hedonic bias, is labeled the Self-Serving Effect (SSE) in the present investigation.

Attribution researchers (e.g., Bradley, 1978; Snyder, Stephan & Rosenfield, 1978; Zuckerman, 1979) hypothesize that individuals are motivated to take credit for their success and deny responsibility for their failure in order to protect or enhance their self-esteem. Riess, Rosenfield, Melburg and Tedeschi (1981, p. 225) suggest that the SSE represents either "conscious, intentional distortions" that protect one's self-esteem, or "unconscious, unwitting distortions in perceptions of causality" that accurately reflect one's self-perceptions. Alternatively, Miller and Ross (1975) proposed an information processing hypothesis in which the SSE is explained by nonmotivational influences. While a conscious distortion of self-perceptions clearly represents a bias in self-attributions, the other explanations may not. Instead, as suggested by Riess, et al. (1981, p.225) "they imply that individuals actually perceive themselves as more responsible for their positive than for their negative outcomes and accurately report their true private perceptions when offering causal attributions for these outcomes." Since respondents are asked

to report their self-perceptions, their responses are unbiased so long as they accurately represent these self-perceptions -- even if the responses appear unrealistic to an external observer. However, other conceptualizations of bias may be reasonable and it appears that part of the ambiguity in this area of research stems from the fact that different researchers have not operationally defined what they consider to constitute a bias.

Miller and Ross (1975; also see Brewer, 1977; Miller, 1978) examined SSE research and found little evidence to support the contention that the effect was due to motivational distortions, suggesting instead that the SSE could be explained by nonmotivational influences. However, in more recent reviews of SSE research, Bradley (1978), Harvey and Weary (1984), Kelley and Michela (1980), and Zuckerman (1979) found evidence in support of the motivational bias as an explanation of the effect. Experimental manipulations were designed to either enhance or decrease motivational biases in the SSE, and these effects often altered the SSE. Bradley suggested that a motivational bias in attributions is more likely when performance is public, when an individual chooses to engage in the performance task, and when ego involvement is high. Consistent with Heider's formulation, it appears that the SSE is influenced by both objective information and motivational needs. Feather (1983), while arguing that both motivational and nonmotivational factors influence the SSE, asks whether it is possible to disentangle their effects.

While many SSE studies only consider attributions summarized by a single internal/external score, some have examined attributions to specific causes (e.g., ability, effort, task difficulty, and luck) separately. Unfortunately many such studies introduce an artificial interdependency among ratings of the different perceived causes by employing rating tasks such as rankings, forced choices, or other ipsative-type responses. Studies which ask subjects to make independent ratings of different perceived causes generally find substantial SSEs for ability and effort attributions, but SSEs which are much smaller or not even statistically significant for attributions to external causes (Arkin & Maruyama, 1979; Fontaine, 1975; Larson, 1977; Marsh, Cairns, Relich, Barnes & Debus, 1984; Miller, 1976; Simon & Feather, 1973; Stephan, Rosenfield & Stephan, 1976; Tillman & Carver, 1980; Zuckerman & Allison, 1976; also see Zuckerman, 1979). Hence, the size of the SSE varies systematically with the perceived cause that is being considered, but this pattern is

obscured when researchers combine responses to different perceived causes to form an overall internal/external score or employ rating tasks which force an artifical interdependency among the perceived causes. Consistent with this observation, Marsh (in press; Marsh, et al., 1984) argued that attributions cannot be adequately summarized by a single internal/external score and that factor analyses of self-attribution responses provide little or no support for the dimensions typically hypothesized in attribution research (e.g., locus, stability, and controllability).

In summary, there is wide support for the existence of a SSE, though it probably occurs primarily with ability and effort attributions. However, there is considerable controversy about how the SSE should be interpreted. Different researchers have identified both motivational and nonmotivational components of the SSE. Ultimately, the explanation of the SSE as entirely a motivational bias or as entirely a valid representation of self-perceptions must be overly simplistic. Consistent with Heider's original formulation, attributions are a function of both objective information and motivational tendencies.

The SSE as an Individual Difference Characteristic.

In most SSE research outcome, success or failure, is viewed as one of the characteristics of the attribution context which is systematically varied, and this manipulation produces systematic differences in attributions which generalize across respondents. In this approach, there is generally little interest in the size of the SSEs for different respondents, and these individual differences are included as part of the error term. However, it is likely that there are systematic individual differences in the size of SSEs and that these dispositional tendencies will also be related to other individual difference characteristics. Marsh (in press; Marsh, et al., 1984) has argued that neither the situational manipulation approach nor the individual difference approach to the study of attributions is inherently superior, and that the attributional process is affected by both situational and dispositional tendencies.

Marsh (in press; Marsh, et al., 1984) examined the relations between academic self-attribution scales, multiple dimensions of self-concept, and academic achievement. He found that primary school students who attributed academic success to ability and effort, and who did not attribute failure to ability and effort, had better academic self-concepts and better academic achievement scores. Arkin,

Appleman and Burger (1980), Feather (1983), Ickes and Layden (1978), and Fitch (1970) also found that high self-concept subjects were more likely to attribute success internally and/or to attribute failure externally than were low self-concept subjects. Arkin et al. further demonstrated that this effect was independent of a "bogus pipeline" manipulation, suggesting that the relationship was not due to a motivational bias that affected both self-concept and self-attribution. While these studies did not specifically correlate the size of SSEs with self-concept and achievement, the findings suggest that there are systematic relationships among these variables.

The focus of the present investigation is on individual differences in the size of the SSE, and how these are related to other characteristics of the particular respondent. The investigation is a further analysis of two studies (Marsh, in press; Marsh, et al., 1984) in which separate measures for reading and mathematics were available for: 1) self-attributions for the causes of academic successes and failures; 2) multiple dimensions of self-concept; and 3) academic achievement (in one study only reading achievement scores were available). The purposes of the study are to examine how the size of the SSE varies with the particular cause being considered, the extent to which it generalizes across different academic content areas, and how it is related to the respondent's level of academic self-concept and achievement.

METHOD

Sample and Procedures.

Study 1. Subjects were the 226 fifth-grade students (primarily 10 year olds) who attended one of four public coeducational schools in Sydney, Australia and who completed the self-attribution instrument in the original study (see Marsh, et al., 1984 for more detail about the sample and materials). Testing materials, the self-report instruments and the achievement tests, were administered by one of the coauthors of that study to intact classes on one of two different days within the same week. For both self-report instruments described below, several practice items were given to ensure that children knew what was expected of them, and then the items were read aloud at a fairly rapid pace (though children had copies of the instrument in front of them so that they could read along with the researcher.)

Study 2. Subjects were the 559 fifth-grade students enrolled in 19 classes in one of seven Catholic schools in Sydney, Australia (see Marsh, in press, for more detail about the sample and materials). The

two self-report instruments were administered as in Study 1. While the instruments were being administered to the students, the classroom teacher was asked to complete a rating sheet about each child which included ability ratings for reading and mathematics which were made along a nine-point response scale varying from "1- very poor" to "9 - very good." Some teachers were unable to complete the ratings until later, and one teacher declined to complete the forms at all. The achievement tests were sent to each school and were administered by the classroom teachers during a regular class session before the administration of the self-report instruments. These tests were then scored by the researchers and returned to the schools after the completion of the study. Two of the schools declined to participate in the achievement testing, though they did agree to the administration of the self-report measures and to complete the teacher ratings.

Testing Materials.

Sydney Attribution Scale (SAS). The purpose of the SAS is to measure students' perceptions of the causes of their academic successes and failures. The instrument consists of brief scenarios in which the student is to suppose him/herself in a situation representing an academic success or failure. With each scenario are three randomly ordered, plausible causes for the outcome and students make independent ratings of each cause along a five-point response scale. An example of one scenario representing a failure outcome in mathematics, and the three causes, is shown in Table 1. The rationale for the design of the SAS, items analyses, coefficient alpha estimates of reliability, and factor analyses of responses to the SAS, are described by Marsh (in press; Marsh et al., 1984). In those two studies the different SAS scales were systematically and logically related to external validity criteria including multiple dimensions of self-concept, academic achievement in different content areas, and teacher ratings of academic ability and academic self-concepts.

Insert Table 1 About Here

The current version of the SAS measures 12 scales which result from the factorial combination of three facets: academic content (M=math, R=reading); outcome (S=success, F=failure); and perceived cause (A=ability, E=effort, or X=external). For example the reading/success/ability (RSA) scale is represented by six items which measure attributions to ability as the cause of success in reading. This version of the SAS contains 72 items, six for each of the 12

scales. An earlier version of the SAS used in Study 1 differed in that it contained 10 items for each of 18 scales -- the 6 reading scales and the 6 mathematics scales considered here, and an additional 6 scales representing "school subjects in general." For purposes of the present investigation, only the 12 scales representing the reading and math scales that appear on the current version of the SAS and that were used in both Study 1 and Study 2 are considered. Scale scores were computed by summing the responses to the 10 items (for Study 1) or 6 items (for Study 2) designed to measure each scale. Responses to the external items were reversed so that higher scores on all scales can be interpreted as more internal responses.

In each scenario subjects make ratings of three plausible causes. The perceived reasons use to represent the external attributions included a wide variety of causes (e.g., task difficulty, luck, the teacher, bias, others, the environment, etc.). The decision to represent the different external causes in a single scale was partly pragmatic but was also based on earlier research described by Marsh, et al. (1984). The reasons used to represent effort attributions included both atypical or unstable effort (e.g., you tried particularly hard) and typical or stable effort (e.g., you always try to do your best), though many items could not be unambiguously defined as one or the other (e.g., you had not done the work to be ready, you spent a lot of time doing it, you tried hard). The reasons used to represent ability attributions represented stable ability (e.g., you know more math than most other children; you are a poor reader).

The focus of the present investigation is on the self-serving effect (SSE). The SSE is represented by a set of six differences scores (see footnote 1) representing responses to corresponding success and failure scales. For example, the SSE for ability attributions in reading was determined by subtracting the RFA scale score from the RSA scale score. Similarly, difference scores were computed for effort and external attributions in reading, and ability, effort and external attributions in mathematics.

Self-concept Measures. The Self Description Questionnaire (SDQ) measures seven components of preadolescent self-concept derived from Shavelson's model (Shavelson, Hubner & Stanton, 1976; Marsh & Shavelson, 1984). These consist of self-concepts in four nonacademic areas (Physical Ability, Physical Appearance, Peer Relationships, and Parent Relationships) and three academic areas (Reading, Math and General-School). A description of the seven-scale instrument, its

theoretical rationale, the wording of the items, reliabilities and six separate factor analyses are presented elsewhere (Marsh, Barnes, Cairns & Tidman, in press; Marsh, Parker & Smith, 1983; Marsh, Relich & Smith, 1983; Marsh, Smith & Barnes, 1983; Marsh, Smith, Barnes & Butler, 1983). This research has shown the seven SDQ scales to be reliable (coefficient alpha's in the 0.80's and 0.90's), moderately correlated with measures of corresponding academic abilities (r's from 0.3 to 0.7), and in agreement with self-concepts inferred by primary school teachers. For purposes of this investigation the responses to the eighth positively worded items for each of the seven scales were summed to obtain scale scores, and these were used as the basis of further analyses. In study 2 a revised version of the SDQ was used which differed only in the inclusion of an eighth, General-self scale which is similar to the to the Rosenberg (1965) self-esteem scale. Research described elsewhere (Marsh, Smith & Barnes, in press; Marsh, Smith & Barnes, 1984) demonstrates this eight scale to be internally consistent and to define a separate component of self-concept as identified by factor analyses. The inclusion of the General-self scale is particularly important for the present investigation since most previous SSE research has employed a single measure of self-esteem such as the General-self scale rather than multiple dimensions of self-concept.

Achievement Measures For Study 1. Reading achievement was assessed with the GAP (McLeod, 1977; also see review by D. B. Black cited in Buros, 1972) and the comprehension section of the Primary Reading Survey Tests of the Australian Council for Educational Research (ACER, 1976). In Study 1 the coefficient alphas estimates of reliability for the two tests were 0.83 and 0.90 respectively. For purposes of Study 1 the mean of the nonmissing reading test scores, after each had been standardized (mean = 0.0, SD = 1.0), was used to represent reading achievement (see Marsh, et al., 1984, for further description).

Achievement Measures For Study 2. Reading achievement was assessed with the comprehension and word knowledge sections of the Primary Reading Survey Tests (ACER, 1976). Scores from the two sections had split-half reliabilities of 0.87 and 0.92 respectively, and correlated 0.73 with each other. Scores from the two reading tests were summed after each score had been standardized (mean = 0.0, SD = 1.0). Mathematics achievement was assessed with the Class Achievement Test in Mathematics (ACER, 1979), and this test had a split-half

reliability of 0.86. Teacher ratings of ability in reading, and mathematics were also taken to be indicators of academic achievement. For the teacher ratings of academic ability there were 36 missing cases (6%), representing primarily students from one class where the teacher did not complete the ratings, and 142 missing values (25%) for the achievement tests, representing primarily students from two schools which did not administer the achievement tests. However, only few students had missing values for both teacher ratings and the achievement test scores.

Because of the potential problems created by the large number of missing values, separate analyses described later were performed on mathematics and reading achievement scores representing test scores, teacher ratings of ability, and the sum of test scores and teacher ratings for students who had no missing values for either (after each had been standardized). Also, a total achievement score was obtained by taking the mean of the nonmissing scores (after standardization) representing teacher ratings and test scores so long as there was at least one reading achievement indicator and one mathematics achievement indicator. For this total achievement score there were only seven missing values.

Statistical Analyses.

In the first analyses a 2 (academic content) x 2 (outcome) x 3 (perceived cause) x 4 (level of academic achievement) ANOVA was performed on responses to the SAS. The first three factors of the ANOVA were within-subject (or repeated measure) factors which represented the three facets of the SAS instrument. The fourth factor, achievement level, was a between-subject factor for which students were categorized into one of four levels of achievement on the basis of scores in reading achievement (Study 1) or total achievement (Study 2). Separate ANOVAs were conducted in Study 1 and Study 2 with the MANOVA procedure of the commercially available SPSS program (Hull & Nie, 1981). For purposes of these ANOVAs only subjects who had no missing data on the self-attribution scales and the total achievement scores were considered (211 of 226 subjects in Study 1, and 549 of 559 subjects in Study 2).

In the second analyses, the set of six difference scores used to represent the self-serving effect (SSE) were correlated with the multiple dimensions of self-concepts and the achievement indicators. For purposes of these analyses, pair-wise deletion of missing data was used in the determination of the correlations (see Nie, et al., 1975),

but similar conclusions resulted when correlations were based upon only those cases where there was no missing data. Thus, while the large number of missing cases for various achievement indicators in Study 2 does require that the results be interpreted cautiously, it is unlikely to have had any substantial effect.

RESULTS

The Effect of Outcome on Academic Attributions.

The demonstration of an SSE requires that attributions for the perceived causes of success outcomes should be more internal than those of failure outcomes. In the ANOVAs in Table 2 the SSE is represented by the outcome effect, and interactions involving the outcome effect demonstrate ways in which the SSE depends upon other variables. For both studies the SSE is strong; the outcome effect is large (see Table 2) and attributions are more internal for success than for failure (Figure 1A). However, the SSE varies significantly and substantially with both the perceived cause and the level of achievement. The outcome-by-cause interaction can be seen in Figure 1A. The SSE, the difference in attributions for success and failure outcomes, is largest for ability attributions, slightly smaller for effort attributions, and much smaller (in Study 2) or nonexistent (in Study 1) for external attributions. In both Study 1 and Study 2 the SSE effect is significantly larger for ability attributions than for effort attributions ($t(225) = 4.30$, $p < 0.001$, & $t(554) = 7.28$, $p < 0.001$, respectively). In Study 2 the SSE effect for external scales, though small, is significantly different from zero ($t(554) = 11.06$, $p < 0.001$), but not in Study 1 ($t(225) = 0.13$). Hence, while the SSE is strong for attributions of ability and effort, it is weak or nonexistent for attributions to external causes.

Insert Figure 1 and Table 2 About Here

Figures 1B and 1C illustrate the outcome-by-achievement interaction. The SSE is substantially larger for students with the highest levels of achievement, and smaller for students with the lowest level of achievement. The results for the two middle levels of achievement are also consistent with this trend though separate graphs to represent these groups are not presented. Subsequent analyses demonstrated that the effect of achievement level was significant for both the success and failure scales considered separately. High achievement students were more internal in their attributions for success outcomes than were low achievement students ($F(3,207) = 17.37$, $p < 0.001$, & $F(3,545) = 20.84$, $p < 0.001$, in studies 1 and 2

respectively), and high achievement students were more external in their attributions about failure outcomes than were low achievement students ($F(3,207) = 11.91$, $p < 0.001$ & $F(3,545) = 13.26$, $p < 0.001$, in studies 1 and 2 respectively). However, it is interesting to note that the outcome-by-achievement interaction does not vary significantly with cause in Study 1 (see Table 2), and that this effect is small in Study 2.

In both studies the 4 main effects and 11 interaction effects account for nearly half of the total variance in student responses. However, most of the explicable variance can be explained by the effects of outcome, cause, and the outcome-by-cause and outcome-by-achievement interactions. The effect of academic content and its interaction with other variables is small in both studies. This suggests that the size of the SSE, and its dependency on perceived cause and achievement level, is similar for attributions in reading and in mathematics. However, this should not be interpreted to mean that the individual students who show the largest SSE effects in reading attributions are also those who have the largest SSE effects in mathematics. The consideration of this and related issues is the purpose of the second set of analyses.

Individual Differences in the SSE

The results of most SSE research and the findings described above demonstrate that, when averaged across all respondents, attributions for success are more internal than are attributions for failures. The purpose of this second set of analyses is to determine how individual differences in the size of the SSE vary with other individual difference characteristics. A set of six difference scores, differences between attributions for success and failure outcomes, were used to infer the size of the SSE for each individual for the perceived causes in each content area. These six SSE indicators were then correlated with each other, and with measures of academic achievement and self-concept (see Table 3).

Insert Table 3 About Here

Correlations among the six SSE indicators form a systematic and reasonably consistent pattern of correlations across the two studies. The two external indicators, for reading and for mathematics, are substantially correlated with each other in both studies (mean $r = 0.54$) but not with any other scales (mean $r = -0.01$). Correlations between ability and effort indicators are high when based upon the same content (mean $r = 0.64$). The SSE indicator for the reading

effort scale is substantially correlated with the indicator for the mathematics effort scale (mean r = 0.65), as are the two external indicators (0.54), but the two ability indicators are less correlated (mean r = 0.36). These findings demonstrate that the size of SSEs based upon external scales are nearly uncorrelated with those based on ability and effort scales. Also, at least for ability attributions, SSEs based upon reading attributions are only modestly correlated with SSEs based upon math attributions. While SSEs based upon ability attributions appear to be reasonably content specific, those based upon effort and external scales may not be.

Correlations between the six SSE indicators and the multiple self-concepts (temporarily excluding consideration of the General-Self scale in Study 2) also form a systematic pattern of relations that is consistent across both studies. The SSEs for external scales are relatively uncorrelated with any self-concept scores (mean r = -0.05). The SSEs for the ability and effort scales are moderately correlated with the academic self-concepts (mean r = 0.39), but less correlated with nonacademic self-concepts (mean r = 0.20). In both studies the highest correlations are between the SSEs for ability scales in a particular content area and the academic self-concept in the same content area (mean r = 0.63). It is also important to note that SSEs for math ability scales are highly correlated with math self-concept (0.71 & 0.61) but not with reading self-concept (0.22 & 0.18). Similarly, SSEs for the reading ability scales are highly correlated with reading self-concept (0.57 & 0.63) but not with math self-concept (0.09 & 0.14). Thus, the SSEs representing the ability and effort scales are substantially correlated with academic self-concepts, and in particular the SSEs based upon attributions of ability are quite content specific.

The pattern of correlations for the General-self scale in Study 2 is similar to those observed with the other self-concept scales. The General-Self scale is relatively uncorrelated with the SSEs based on the external scales, and modestly correlated with the SSEs based on ability and effort scales. The correlations are larger than those based on the nonacademic self-concepts and somewhat smaller than those based on the academic self-concepts. This finding is important since most other SSE research has only employed a single measure of self-concept which is typically like the General-self scale.

Study 1 provides a weak basis for examining relations between the SSE indicators and academic achievement, since it contains only

reading achievement test scores. Correlations between all six SSE indicators and the reading achievement scores are positive and statistically significant. The SSE based upon reading ability attributions is more highly correlated with reading achievement (0.33) than is the SSE based upon math ability attributions (0.20). Nevertheless, the pattern of observed correlations and the lack of indicators of mathematics achievements make tenuous any inferences about the content specificity of the SSEs with respect to achievement.

Study 2 provides a much stronger basis for examining the relations among the set of SSEs and academic achievement in different content areas; it contains achievement indicators for reading and mathematics based upon both test scores and teacher ratings. As in Study 1 the achievement indicators are significantly correlated with the SSE indicators. Reading achievement is most highly correlated with the SSE based upon reading ability attributions. Similarly, mathematics achievement is most highly correlated with the SSE based upon mathematics ability attributions. This same pattern, both for reading and for math scores, occurs with objective test scores, with teacher ratings, and with their total. Hence, the SSEs are moderately correlated with academic achievement indicators, and at least the SSEs based upon attributions of ability are content specific.

One additional individual difference variable, gender of the respondent, was correlated with the SSE indicators (see Table 3; also see footnote 2). Despite the large sample sizes, gender was typically not correlated with the SSE indicators in either study. Thus, the size of the SSE appears to be similar for males and females in the present investigation.

In summary, the six SSE indicators form a systematic and logical pattern of relationships with each other, with self-concept, and with academic achievement, which is consistent across the two studies. The SSEs are significantly correlated both with academic achievement and with academic self-concept. Furthermore, particularly for SSEs based upon ability attributions, the SSEs are content specific. This content specificity of the different SSEs is most evident in the correlations with self-concepts, but it is also evident in the correlations with different academic achievement indicators in Study 2.

DISCUSSION AND IMPLICATIONS

Consistent with previous SSE research, the results of the present investigation demonstrate that self-attributions for the perceived

causes of success are more internal than those for failure. However, the findings also demonstrate that the size of the SSE depends upon the particular cause that is being evaluated, individual characteristics of the person making the attributions, and perhaps the content area in which the attributions are being made.

The dependency of the SSE upon the particular cause has not typically been reported by other researchers because they usually collapse responses from different causes to form a single internal-external score. However, this dependency is consistent with findings from eight studies by different researchers described earlier. In those studies the the SSE was also large for ability and effort scales, but was smaller or did not occur for external scales (task difficulty and luck). This finding further supports the contention that self-attributions cannot be adequately represented with a single internal-external score (see Marsh, et al., 1984; Marsh, in press), and argues against the practice of combining responses to different perceived causes to form a single internal/external score in SSE research.

The dependency of the SSE upon a student's achievement level has not been previously emphasized. In the present investigation, this dependency was demonstrated in the initial ANOVA and in the subsequent examination of correlations. Both analyses showed that students who are more academically able are more likely to attribute their academic successes internally, and are more likely to attribute their academic failures externally, than are students who are less academically able. Furthermore, in Study 2 where multiple indicators of achievement in reading and mathematics were available, the effects of achievement on SSEs inferred from ability scales were content specific. Students who were more able in reading had larger SSEs for attributions of ability in reading, and students who were more able in mathematics had larger SSEs for attributions of ability in mathematics. This systematic and logical pattern of relations between the SSEs and the achievement indicators cannot reasonably be explained as a motivational response bias, and should be interpreted as an informational influence on the SSE. The pattern of relations also provides support for the construct validity of the academic attributions.

The dependency of the SSE upon self-concept is also systematic and logical, but alternative explanations for this relationship exist. According to a "validity interpretation," it is reasonable that students with high academic self-concepts should attribute academic

success internally and academic failure externally. To attribute success externally, or to attribute failure internally, would be inconsistent with their high academic self-concept (Marsh, in press; Marsh, et al., 1984). Hence, the positive correlation between academic self-concepts and the SSE in academic attributions is predictable, and offers support for the construct validity of both self-concept and self-attribution. However, according to a "bias interpretation" in which the SSE is interpreted to be due to a motivational bias in the way subjects respond to the academic attribution instrument, it is reasonable that a similar motivational bias would affect the self-concept responses; this would cause responses to the two measures to be positively correlated.

A more detailed examination of the pattern of correlations between the SSE indicators and self-concept scores provides support for the validity interpretation. First, the validity interpretation is clearly consistent with the finding that SSEs based upon academic attributions are more highly correlated with academic self-concepts than with nonacademic self-concepts. The bias interpretation probably is not consistent with this result, unless the bias is hypothesized to be content specific. Second, the validity interpretation is consistent with the lack of correlation between self-concept ratings and the SSE based upon the external scales. The bias interpretation probably predicts that the SSE would be substantial for all perceive causes, as implied by the typical practice of averaging across responses to internal and external scales in SSE research. Third, the extreme content specificity of the correlations for SSEs based upon ability attribution scales and matching areas of academic self-concept is consistent with the validity interpretation, but apparently not with the bias interpretation. Finally, and most importantly, the validity interpretation is consistent with the dependency of the SSEs upon academic achievement, while the bias interpretation is not. Also, the context of the present investigation is unlikely to motivate response biases according to the criteria presented by Bradley (1978). Thus, there is stronger support for the validity interpretation of the self-concept/SSE relationship than for the bias interpretation.

In summary, individual differences in the size of the SSE are logically related to individual differences in academic self-concept and academic achievement. For example, students who are particularly able at mathematics, and who have high math self-concepts, are more likely to attribute success in mathematics to their ability, and less

likely to attribute failure in mathematics to their lack of ability, than are students with poorer mathematical abilities and poorer math self-concepts. The pattern of relationships is most clear for attributions of ability, but it is reasonable that ability attributions should be most strongly related to academic achievement and self-concept. While there is ample evidence from other research to demonstrate that motivational biases can influence the SSE, it seems unreasonable to interpret the effect of self-concept and particularly the effect of achievement as motivational response biases in the present investigation. The argument that the effect of self-concept is not a motivational bias in the present investigation is particularly important, since most interpretations of the SSE as a response bias assume that the purpose of the bias is to protect or enhance self-concept. Findings described here do not argue that ego provoking manipulations in other studies do not result in response biases in self-attributions in some situations, but they do demonstrate that positive correlations between the SSE and self-concept may represent a logical and reasonable way to infer causality which is not motivated by the need to distort attributions.

FOOTNOTES

1 -- A difference score, when based upon the difference between two positively correlated variables, is generally less reliable than either of the variables upon which it is based. However, in SSE research, attributions for success tend to be negatively correlated with attributions for failure (see Marsh, et al., 1984). Hence, the difference scores based upon attributions to success and failure outcomes tend to be more reliable than the individual scales upon which the difference scores are based.

2 -- Though not a focus of the present investigation, the SSE effect did not vary significantly with sex (see Table 3). Also, four-way ANOVAs similar to those shown in Table 2, except that sex replaced the achievement level variable, were conducted for studies 1 and 2. The main effect of sex was not significant in either analysis, and interactions involving sex were very small, and generally did not reach statistical significance. Thus, in the present investigation, the SSE and its dependency upon other variables were not dependent upon sex. On basis of these analyses, the sex effect was not included in the discussion of the present investigation.

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TABLE 1

An Example of a Scenario From the Sydney Attribution Scale (SAS)

Scenario	Response				
	False	Mostly false	Sometimes true sometimes false	Mostly true	True
Suppose you did badly in a math test. This is probably because					
a. You always do badly in math tests (an ability attribution)	☐	☐	☐	☐	☐
b. You spent too little time studying (an effort attribution)	☐	☐	☐	☐	☐
c. The test was hard for everyone (an external attribution)	☐	☐	☐	☐	☐

Note. The comments in parentheses have been added.

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TABLE 2

An ANOVA of the Three Facets Representing the 12 SAS Scales and Scales and Academic Achievement

Study 1

Effect	SS	df	F-Ratio	Eta^2 x100%
Subjects	11,768	207		
Level of Ach(L)	139	3	0.82	
Outcome (O)	97,747	1	791.60**	29.6%
Content (C)	113	1	5.11	
Attribution(A)	7,222	2	40.89**	2.2%
O x L	7,838	3	21.16**	2.4%
C x L	187	3	2.81	
A x L	4,334	6	8.18**	1.3%
O x C	6	1	0.11	
O x C x L	469	3	3.13	
O x A	50,214	2	239.99**	15.2%
O x A x L	1,045	6	1.67	
C x A	1,999	2	56.89**	0.6%
C x A x L	134	6	1.27	
O x C x A	3,763	2	51.76**	1.1%
O x C x A x L	99	6	0.46	
TOTAL	329,782			

* $p < .01$; ** $p < .001$

Study 2

Effect	SS	df	F-Ratio	Eta^2 x100%
Subjects	25,377	545		
Level of Ach(L)	135	3	0.97	
Outcome (O)	104,290	1	1327.42**	31.1%
Content (C)	1,546	1	121.56**	0.5%
Attribution(A)	4,490	2	52.86**	1.3%
O x L	6,315	3	26.79**	1.9%
C x L	75	3	1.97	
A x L	1,325	6	5.20**	0.4%
O x C	1,508	1	56.49**	0.5%
O x C x L	237	3	2.97	
O x A	22,149	2	356.77**	6.6%
O x A x L	1,201	6	6.45**	0.4%
C x A	218	2	12.85**	0.1%
C x A x L	53	6	1.05	
O x C x A	299	2	10.85**	0.1%
O x C x A x L	200	6	2.42	
TOTAL	335,125			

TABLE 3

Correlations Among Differences in Attributions, Self-concept, and Achievement Scores For Study 1 (#1) and For Study 2 (#2)

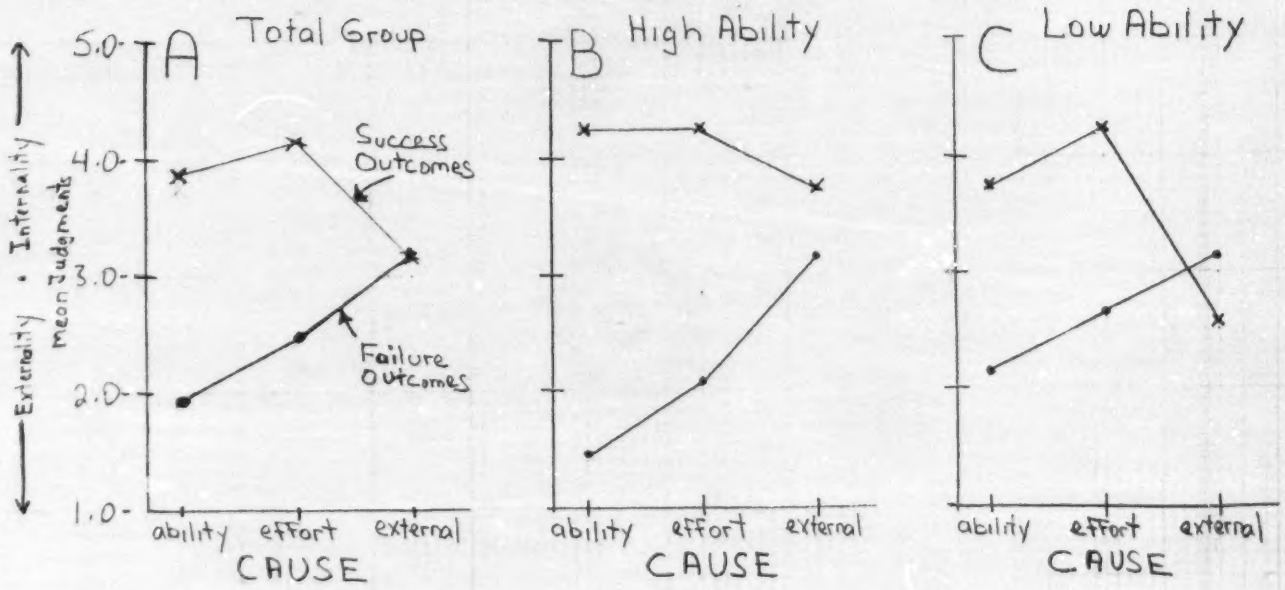
		SSE Indicators: Differences in Attributions					
		MSA-MFA	MSE-MFE	MSX-MFX	RSA-RFA	RSE-RFE	RSX-RFX
SSE Indicators							
MSA-MFA	#1	1.00					
	#2	1.00					
MSE-MFA	#1	.63**	1.00				
	#2	.63**	1.00				
MSX-MFX	#1	-.10	-.20**	1.00			
	#2	.14**	.05	1.00			
RSA-RFA	#1	.35**	.46**	-.11	1.00		
	#2	.38**	.44**	.07	1.00		
RSE-RFE	#1	.40**	.72**	-.19**	.67**	1.00	
	#2	.33**	.59**	.04	.64**	1.00	
RSX-RFX	#1	-.12*	-.20**	.55**	-.09	-.25**	1.00
	#2	.20*	.15**	.53**	.29**	.19**	1.00
Self-Concepts							
Academic							
Math	#1	.71**	.49**	-.07	.09	.26**	-.11
	#2	.61**	.46**	-.02	.14**	.22**	.03
Reading	#1	.22**	.36**	-.03	.57**	.54**	-.10
	#2	.18**	.25**	.05	.63**	.43**	.18**
School	#1	.50**	.49**	-.14*	.25**	.39**	-.11
	#2	.46**	.41**	-.04	.28**	.29**	.08
Nonacademic							
Appear	#1	.33**	.15*	-.06	.14*	.05	-.08
	#2	.26**	.30**	-.01	.20**	.25**	.07
Physical	#1	.25**	.16*	-.16*	.27**	.14*	-.18**
	#2	.21**	.21**	.02	.12*	.15**	.03
Peers	#1	.26**	.24**	-.21**	.25**	.22**	-.11
	#2	.21**	.22**	-.04	.21**	.18**	.00
Parents	#1	.19**	.21**	-.17**	.28**	.31**	-.12
	#2	.15**	.18**	-.05	.10	.16**	-.02
General							
General	#2	.37**	.38**	-.01	.31**	.31**	.12**
Achievement							
Test Scores							
Reading	#1	.21**	.14*	.35**	.35**	.17**	.39**
	#2	.23**	.13**	.21**	.41**	.17**	.28**
Math	#2	.33**	.18**	.22**	.20**	.07	.26**
Teacher Ratings							
Reading	#2	.24**	.14**	.21**	.35**	.20**	.29**
Math	#2	.38**	.21**	.20**	.22**	.13**	.25**
Total							
Reading	#2	.27**	.16**	.21**	.46**	.23**	.32**
Math	#2	.41**	.25**	.22**	.26**	.15**	.28**
Sex							
(1=male,	#1	-.12	.12	-.03	.10	.29**	-.14*
2=female)	#2	-.08	-.06	.04	-.02	.05	.07

* $p < .05$; ** $p < .01$

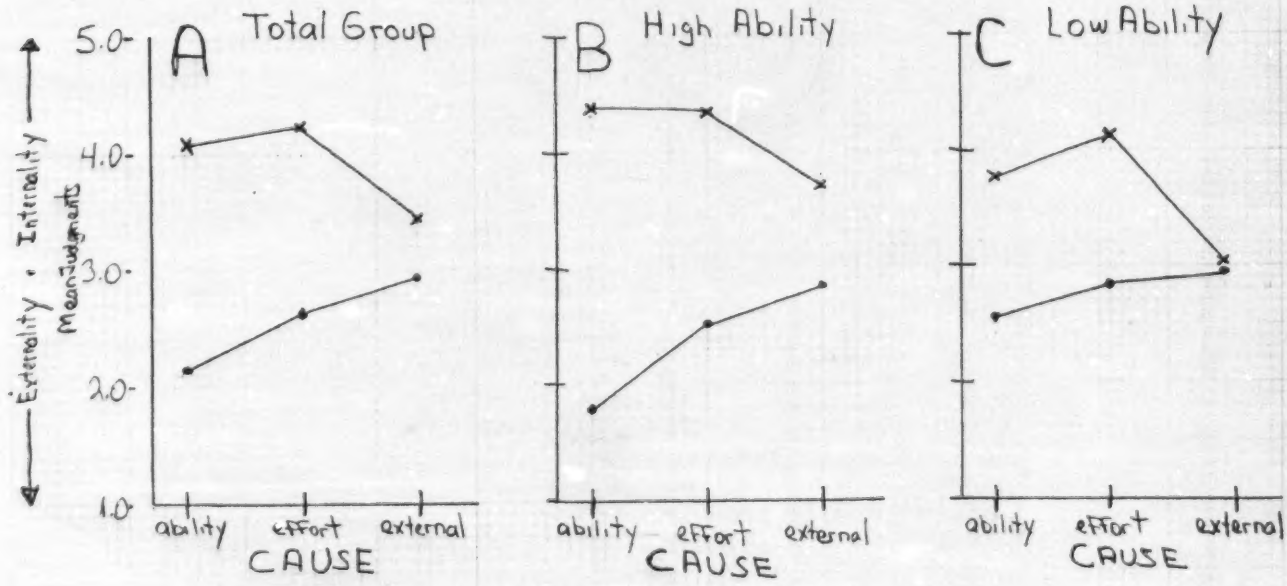
Note: Each attribution score is represented by three letters which represent content (M=Math, R=Reading), outcome (S=Success, F=Failure), and attribution (A=Ability, E=Effort, X=External) respectively. The responses to the external scales have been reflected so that larger values represent more internal responses. The attribution variables used in this analysis are the difference to responses to the success and failure outcomes. For example, the first attribution variable is the difference between ability attributions in mathematics for successes and for failures. Achievement indicators in Study 2 are test scores on objective reading and mathematics tests, teacher ratings of ability in these two areas, and the sum of test scores and teacher ratings. Some measures in Study 2 were not included in Study 1.

FIGURE 1 -- The Outcome By Cause Interaction Across All Respondents (A), and For Respondents With the Lowest Levels of Achievement (B), and For Respondents With the Highest Levels of Achievement in Studies 1 and 2. (Note: each scale score was divided by the number of items upon which it was based so that mean responses vary along the actual 1 to 5 scale employed in the attribution instrument).

STUDY 1



STUDY 2



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Name _____ Boy ____ Girl ____ Grade/ Year _____

Age _____ School _____ Teacher _____

S.A.S. SYDNEY ATTRIBUTION SCALE

This is not a test. There are no right or wrong answers. There are a number of things listed that could happen in school or at home - you are asked to show how true or false each reason for this happening is for you.

Look at the first example. Someone called Terry has filled this one in.

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True	
1. Suppose you won a race at the Sports Carnival. It would probably be because						
a you were just lucky	☐	☐	☐	☐	☐	a
b you are a good runner	☐	☐	☐	☐	☐	b
c you tried hard to run fast	☐	☐	☐	☐	☐	c

(Terry put a tick in the False box for the first reason because for Terry that reason was not true at all. Terry put a tick in the True box for the second reason because Terry is a very good runner and always wins races. Terry put a tick in the Mostly True box for the last reason because Terry did try pretty hard to run fast and it was mostly true).

Now let's look at the second example. Someone named Chris has filled this one in.

2. Suppose that you painted a picture at school and everyone said it was terrible. It would probably be because						
a you are a bad painter	☐	☐	☐	☐	☐	a
b you only tried a little	☐	☐	☐	☐	☐	b
c they did not like you	☐	☐	☐	☐	☐	c

(Chris has ticked Sometimes True, Sometimes False for the first reason because Chris is only a bad painter sometimes. Chris has ticked Mostly True for the second reason because Chris tried only a little on most of the painting. Chris ticked Mostly True on the last reason because it is mostly true that everyone in the class does not like Chris and would have said the painting was terrible for that reason).

NOW YOU TRY THESE EXAMPLES

3. Suppose that you made a model and it fell to pieces as soon as you finished it. It would probably be because						
a you are not good at making models	☐	☐	☐	☐	☐	a
b you did not work carefully on it	☐	☐	☐	☐	☐	b
c the glue was bad	☐	☐	☐	☐	☐	c
4. Suppose that you wrote a story that the teacher said was very good. It would probably be because						
a you write good stories	☐	☐	☐	☐	☐	a
b you tried very hard	☐	☐	☐	☐	☐	b
c the teacher likes you	☐	☐	☐	☐	☐	c

DO NOT TALK TO ANYONE ABOUT YOUR ANSWERS OR LOOK AT ANYONE ELSE'S PAPER.

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L. Cairns and H. W. Marsh
University of Sydney

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	False	Mostly False	Sometimes True Sometimes False	Mostly True	True	
1. Suppose your teacher chose you to be in the top reading group in your class. It would probably be because						
a you are good at reading	☐	☐	☐	☐	☐	a
b you work hard at reading	☐	☐	☐	☐	☐	b
c the teacher made a mistake	☐	☐	☐	☐	☐	c
2. Suppose you have to swap books with someone to correct some maths exercises and no one wants to give you their book. This is probably because						
a nobody likes you very much	☐	☐	☐	☐	☐	a
b you are careless in your work and with corrections	☐	☐	☐	☐	☐	b
c everyone knows you do maths badly	☐	☐	☐	☐	☐	c
3. Suppose you had trouble trying to answer the teacher's question about a story in reading lesson. It is probably because						
a the story was too hard for everyone	☐	☐	☐	☐	☐	a
b you are a poor reader	☐	☐	☐	☐	☐	b
c you should have read it more carefully	☐	☐	☐	☐	☐	c
4. Suppose the teacher wanted you to help correct some maths tests. This is probably because						
a you are one of the best students in maths	☐	☐	☐	☐	☐	a
b it was your turn to do it	☐	☐	☐	☐	☐	b
c you always try to do well at maths	☐	☐	☐	☐	☐	c
5. Suppose the school librarian wants someone to help count books and you are chosen. This is probably because						
a you were sitting near the teacher when the librarian asked for someone	☐	☐	☐	☐	☐	a
b you always work hard and carefully in maths	☐	☐	☐	☐	☐	b
c you are one of the best pupils in your maths class	☐	☐	☐	☐	☐	c
6. Suppose the teacher asked you to read aloud part of a story for the class and you had trouble doing this. It is probably because						
a you are bad at reading aloud	☐	☐	☐	☐	☐	a
b you had to read the hardest part of the story	☐	☐	☐	☐	☐	b
c you were careless about reading the story	☐	☐	☐	☐	☐	c
7. Suppose you get a maths question wrong in class. It is probably because						
a you often have trouble in maths	☐	☐	☐	☐	☐	a
b the question was hard	☐	☐	☐	☐	☐	b
c you never pay attention in maths lessons	☐	☐	☐	☐	☐	c
8. Suppose you are chosen from your school to take part in a state maths competition. This is probably because						
a you will try your best	☐	☐	☐	☐	☐	a
b you were lucky	☐	☐	☐	☐	☐	b
c you are good at Maths	☐	☐	☐	☐	☐	c

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	False	Mostly False	Sometimes True Sometimes False	Mostly True	True	
9. Suppose you start a new story in reading and you find it hard to understand straight away. It is probably because						
a the teacher picks hard stories	☐	☐	☐	☐	☐	a
b you were day dreaming	☐	☐	☐	☐	☐	b
c your reading is poor	☐	☐	☐	☐	☐	c
10. Suppose your parents tell you that your reading is good. It would probably be because						
a you really work hard at reading	☐	☐	☐	☐	☐	a
b you always do well at reading	☐	☐	☐	☐	☐	b
c they are only being nice	☐	☐	☐	☐	☐	c
11. Suppose the class was asked to choose the best five people in maths. If they chose you it would be because						
a you really are one of the best at maths	☐	☐	☐	☐	☐	a
b you work hard to be good at maths	☐	☐	☐	☐	☐	b
c they like you	☐	☐	☐	☐	☐	c
12. Suppose you get a maths problem to do on the board in front of the class and you do it wrong. This is probably because						
a you are unlucky to be asked the hardest problem	☐	☐	☐	☐	☐	a
b you always have trouble solving problems	☐	☐	☐	☐	☐	b
c you did it too quickly and made a silly mistake	☐	☐	☐	☐	☐	c
13. Suppose your teacher says you are doing badly in reading work. It would probably be because						
a you are lazy in reading	☐	☐	☐	☐	☐	a
b the teacher doesn't like you	☐	☐	☐	☐	☐	b
c you always do badly in reading	☐	☐	☐	☐	☐	c
14. Suppose you are chosen to read out a story to all the parents at a special assembly. It would probably be because						
a no one else wanted to do it	☐	☐	☐	☐	☐	a
b you are a good reader	☐	☐	☐	☐	☐	b
c you have been working hard on your reading all year	☐	☐	☐	☐	☐	c
15. Suppose the teacher awarded a gold star for today's reading work and you got it. It would probably be because						
a you earned it by working hard	☐	☐	☐	☐	☐	a
b you were lucky	☐	☐	☐	☐	☐	b
c your reading is good	☐	☐	☐	☐	☐	c
16. Suppose the teacher shows you a new way of doing something in maths and you get it wrong. This is probably because						
a you should pay more attention	☐	☐	☐	☐	☐	a
b the teacher explains things badly	☐	☐	☐	☐	☐	b
c anything in maths is hard for you	☐	☐	☐	☐	☐	c

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	False	Mostly False	Sometimes True Sometimes False	Mostly True	True	
17. Suppose that the teacher asked people in your class to try out to read a poem on a TV show but did NOT ask you. It would probably be because:						
a your reading is not good enough	☐	☐	☐	☐	☐	a
b you decided to play instead of trying to get the poem ready	☐	☐	☐	☐	☐	b
c the teacher forgot to ask you	☐	☐	☐	☐	☐	c
18. Suppose you read a story well in front of your class. It would probably be because						
a you are good at reading	☐	☐	☐	☐	☐	a
b the story was an easy one	☐	☐	☐	☐	☐	b
c you made a special effort to read it	☐	☐	☐	☐	☐	c
19. Suppose the teacher tells you not to help a friend with their maths. This would probably be because						
a you should work harder on your own maths	☐	☐	☐	☐	☐	a
b you make a lot of mistakes in maths yourself	☐	☐	☐	☐	☐	b
c it is unfair	☐	☐	☐	☐	☐	c
20. Suppose the teacher asks you to collect and count the money for an excursion trip. It would probably be because						
a it is your turn to collect money this time	☐	☐	☐	☐	☐	a
b you always try hard in maths classes	☐	☐	☐	☐	☐	b
c you are good at maths and will collect the right money	☐	☐	☐	☐	☐	c
21. Suppose you did really well on a reading test. It is probably because						
a you were lucky	☐	☐	☐	☐	☐	a
b you tried very hard	☐	☐	☐	☐	☐	b
c you always do well in reading tests	☐	☐	☐	☐	☐	c
22. Suppose you find it hard to understand a story you are reading. It is probably because						
a you need to try harder at reading	☐	☐	☐	☐	☐	a
b you are a poor reader	☐	☐	☐	☐	☐	b
c the story is boring	☐	☐	☐	☐	☐	c
23. Suppose you did badly in a maths test. This is probably because						
a you always do badly in maths tests	☐	☐	☐	☐	☐	a
b you spend too little time studying maths	☐	☐	☐	☐	☐	b
c the test was hard for everyone	☐	☐	☐	☐	☐	c
24. Suppose the teacher chooses you to do a special problem in maths. It would probably be because						
a you know more maths than most children	☐	☐	☐	☐	☐	a
b you would work harder on it than your class mates	☐	☐	☐	☐	☐	b
c nobody else wanted to do it	☐	☐	☐	☐	☐	c

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SELF DESCRIPTION QUESTIONNAIRE

Name.....Boy.....Girl.....Grade/Year.....

Age.....School.....Teacher.....

This is a chance to look at yourself. It is not a test. There are no right answers and everyone will have different answers. Be sure that your answers show how you feel about yourself. **PLEASE DO NOT TALK ABOUT YOUR ANSWERS WITH ANYONE ELSE.** We will keep your answers private and not show them to anyone.

When you are ready to begin, please read each sentence and decide your answer. (You may read quietly to yourself as I read aloud.) There are five possible answers for each question — — "True", "False", and three answers in between. There are five boxes next to each sentence, one for each of the answers. The answers are written at the top of the boxes. Choose your answer to a sentence and put a tick (✓) in the box under the answer you choose. **DO NOT** say your answer out loud or talk about it with anyone else.

Before you start there are three examples below. Somebody named Bob has already answered two of these sentences to show you how to do it. In the third one you must choose your own answer and put in your own tick (✓).

	FALSE	MOSTLY FALSE	SOMETIMES FALSE, SOMETIMES TRUE	MOSTLY TRUE	TRUE
EXAMPLES					
1. I like to read comic books..... 1	☐	☐	☐	☐	☑
2. In general, I am neat and tidy..... 2	☐	☐	☑	☐	☐ 2
3. I like to watch T.V. 3	☐	☐	☐	☐	☐ 3

(Bob put a tick in the box under the answer "TRUE". This means that he really likes to read comic books. If Bob did not like to read comic books very much, he would have answered "FALSE" or "MOSTLY FALSE".)

(Bob answered "SOMETIMES FALSE, SOMETIMES TRUE" because he is not very neat, but he is not very messy either.)

(For this sentence you have to choose the answer that is best for you. First you must decide if the sentence is "TRUE" or "FALSE" or somewhere in between. If you really like to watch T.V. a lot you would answer "TRUE" by putting a tick in the last box. If you hate watching T.V. you would answer "FALSE" by putting a tick in the first box. If your answer is somewhere in between then you would choose one of the other three boxes.)

If you want to change an answer you have marked you should cross out the tick and put a new tick in another box on the same line. For all the sentences be sure that your tick is on the same line as the sentence you are answering. You should have one answer and only one answer for each sentence. Do not leave out any of the sentences.

If you have any questions put up your hand. Turn over the page and begin. Once you have started, **PLEASE DO NOT TALK.**

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The University of Sydney
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		FALSE	MOSTLY FALSE	SOME-TIMES FALSE, SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
1. I am good looking	1	☐	☐	☐	☐	☐	1
2. I'm good at all SCHOOL SUBJECTS	2	☐	☐	☐	☐	☐	2
3. I can run fast	3	☐	☐	☐	☐	☐	3
4. I get good marks in READING	4	☐	☐	☐	☐	☐	4
5. My parents understand me	5	☐	☐	☐	☐	☐	5
6. I hate MATHEMATICS	6	☐	☐	☐	☐	☐	6
7. I have lots of friends	7	☐	☐	☐	☐	☐	7
8. I like the way I look	8	☐	☐	☐	☐	☐	8
9. I enjoy doing work in all SCHOOL SUBJECTS	9	☐	☐	☐	☐	☐	9
10. I like to run and play hard	10	☐	☐	☐	☐	☐	10
11. I like READING	11	☐	☐	☐	☐	☐	11
12. My parents are usually unhappy or disappointed with what I do	12	☐	☐	☐	☐	☐	12
13. Work in MATHEMATICS is easy for me	13	☐	☐	☐	☐	☐	13
14. I make friends easily	14	☐	☐	☐	☐	☐	14
15. I have a pleasant looking face	15	☐	☐	☐	☐	☐	15
16. I get good marks in all SCHOOL SUBJECTS	16	☐	☐	☐	☐	☐	16
17. I hate sports and games	17	☐	☐	☐	☐	☐	17
18. I'm good at READING	18	☐	☐	☐	☐	☐	18
19. I like my parents	19	☐	☐	☐	☐	☐	19
20. I look forward to MATHEMATICS	20	☐	☐	☐	☐	☐	20
21. Most kids have more friends than I do	21	☐	☐	☐	☐	☐	21
22. I am a nice looking person	22	☐	☐	☐	☐	☐	22
23. I hate all SCHOOL SUBJECTS	23	☐	☐	☐	☐	☐	23
24. I enjoy sports and games	24	☐	☐	☐	☐	☐	24
25. I am interested in READING	25	☐	☐	☐	☐	☐	25
26. My parents like me	26	☐	☐	☐	☐	☐	26

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE, SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
27. I get good marks in MATHEMATICS	27	☐	☐	☐	☐	☐	27
28. I get along with other kids easily	28	☐	☐	☐	☐	☐	28
29. I do lots of important things	29	☐	☐	☐	☐	☐	29
30. I am ugly	30	☐	☐	☐	☐	☐	30
31. I learn things quickly in all SCHOOL SUBJECTS	31	☐	☐	☐	☐	☐	31
32. I have good muscles	32	☐	☐	☐	☐	☐	32
33. I am dumb at READING	33	☐	☐	☐	☐	☐	33
34. If I have children of my own I want to bring them up like my parents raised me	34	☐	☐	☐	☐	☐	34
35. I am interested in MATHEMATICS	35	☐	☐	☐	☐	☐	35
36. I am easy to like	36	☐	☐	☐	☐	☐	36
37. Overall I am no good	37	☐	☐	☐	☐	☐	37
38. Other kids think I am good looking	38	☐	☐	☐	☐	☐	38
39. I am interested in all SCHOOL SUBJECTS	39	☐	☐	☐	☐	☐	39
40. I am good at sports	40	☐	☐	☐	☐	☐	40
41. I enjoy doing work in READING	41	☐	☐	☐	☐	☐	41
42. My parents and I spend a lot of time together	42	☐	☐	☐	☐	☐	42
43. I learn things quickly in MATHEMATICS	43	☐	☐	☐	☐	☐	43
44. Other kids want me to be their friend	44	☐	☐	☐	☐	☐	44
45. In general I like being the way I am	45	☐	☐	☐	☐	☐	45
46. I have a good looking body	46	☐	☐	☐	☐	☐	46
47. I am dumb in all SCHOOL SUBJECTS	47	☐	☐	☐	☐	☐	47
48. I can run a long way without stopping	48	☐	☐	☐	☐	☐	48
49. Work in READING is easy for me	49	☐	☐	☐	☐	☐	49
50. My parents are easy to talk to	50	☐	☐	☐	☐	☐	50
51. I like MATHEMATICS	51	☐	☐	☐	☐	☐	51
52. I have more friends than most other kids	52	☐	☐	☐	☐	☐	52

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE, SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
53. Overall I have a lot to be proud of	53	☐	☐	☐	☐	☐	53
54. I'm better looking than most of my friends	54	☐	☐	☐	☐	☐	54
55. I look forward to all SCHOOL SUBJECTS	55	☐	☐	☐	☐	☐	55
56. I am a good athlete	56	☐	☐	☐	☐	☐	56
57. I look forward to READING	57	☐	☐	☐	☐	☐	57
58. I get along well with my parents	58	☐	☐	☐	☐	☐	58
59. I'm good at MATHEMATICS	59	☐	☐	☐	☐	☐	59
60. I am popular with kids of my own age	60	☐	☐	☐	☐	☐	60
61. I can't do anything right	61	☐	☐	☐	☐	☐	61
62. I have nice features like nose, and eyes, and hair	62	☐	☐	☐	☐	☐	62
63. Work in all SCHOOL SUBJECTS is easy for me	63	☐	☐	☐	☐	☐	63
64. I'm good at throwing a ball	64	☐	☐	☐	☐	☐	64
65. I hate READING	65	☐	☐	☐	☐	☐	65
66. My parents and I have a lot of fun together	66	☐	☐	☐	☐	☐	66
67. I can do things as well as most other people	67	☐	☐	☐	☐	☐	67
68. I enjoy doing work in MATHEMATICS	68	☐	☐	☐	☐	☐	68
69. Most other kids like me	69	☐	☐	☐	☐	☐	69
70. Other people think I am a good person	70	☐	☐	☐	☐	☐	70
71. I like all SCHOOL SUBJECTS	71	☐	☐	☐	☐	☐	71
72. A lot of things about me are good	72	☐	☐	☐	☐	☐	72
73. I learn things quickly in READING	73	☐	☐	☐	☐	☐	73
74. I'm as good as most other people	74	☐	☐	☐	☐	☐	74
75. I am dumb at MATHEMATICS	75	☐	☐	☐	☐	☐	75
76. When I do something, I do it well	76	☐	☐	☐	☐	☐	76